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(54) COSMETIC

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain an aqueous cosmetic having a new solid-liquid mixture-based form, namely a form wherein gel particles controlled to an average particle diameter of 0.5-10.0 mm are dispersed in a sol.

SOLUTION: A sol-gel mixture composition is obtained by thermally dissolving a composition containing one or more substances selected from agar, carrageenan, gellant gum and sodium alginate as disintegrative water-soluble gelled polysaccharides and one or more substances selected from native gellant gum, xanthan gum, guar gum, locust bean gum, carboxyvinyl polymers, acrylic acid-alkyl methacrylate copolymers, hydroxyethyl cellulose and hydroxypropyl cellulose, uniformly cooling and solidifying the solution, applying a mechanical shear force to the solid product to form gel particles having an average particle size of 0.5-10.0 mm. The sol-gel mixture composition has good freezing resistance and high temperature resistance, is free from stability failures such as water separation, and can easily be mixed with active ingredients.

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CLAIMS

[Claim(s)]

[Claim 1] The drainage system sol-gel mixing constituent which adjusted the gel particle to 0.5-10.0mm using mechanical shearing force after making homogeneity carry out cooling solidification of the polysaccharide which forms collapsibility gel as gelation base resin, and the constituent which contained the water-soluble thickener as a stability improver.

[Claim 2] The constituent of claim 1 characterized by including one sort in native gellant gum, xanthan gum, guar gum, roast bean gum, a carboxyvinyl polymer, an acrylic acid and an alkyl methacrylate copolymer, hydroxyethyl cellulose, and hydroxypropylcellulose, or two sorts or more as a stable disposition top agent including one sort in an agar, a carrageenan, gellant gum, and sodium alginate, or two sorts or more as collapsibility gelation polysaccharide.

[Claim 3] The charge of makeup by the constituent of claim 2, or the charge of makeup characterized by blending this constituent.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention relates to the drainage system gel which combined the water-soluble thickener chosen as collapsibility gelation polysaccharide and a stability improver further about the charge of drainage system makeup at a detail in the sol-gel mixing constituent which applied and created mechanical shearing force, or the charge of new drainage system makeup which blended this.

[0002]

[Description of the Prior Art] Conventionally, in the field of the charge of makeup, about the pharmaceutical form of solid-liquid mixed stock, a solid-state component is adjusted beforehand and it is common into a liquid part to carry out addition mixing. As a solid-state component, granulation objects, such as drainage system gels, such as plastics, such as polyethylene and polypropylene, and an agar, gelatin, the testa of fruits and an inorganic pigment, and plastics, are known. Viscosity or a nonviscous liquid is made to distribute these, and it considers as pharmaceutical preparation. Then, distributing homogeneity and maintaining a solid particulate in the target magnitude pose a problem. Usually, it is difficult to blend an about several mm solid particulate with stability at homogeneity, and stabilization is achieved by making a liquid part usually thicken. Thickening polysaccharide, such as cellulose system thickeners, such as acrylic-acid system resin represented by the carboxyvinyl polymer as a thickener and hydroxyethyl cellulose, and xanthan gum, and a clay mineral are raised. By the acrylic-acid system resin generally used, since [lacking in the salt atmosphere and] reactivity is high, combination of a water-soluble active principle is difficult. Moreover, about a cellulose system thickener, since viscosity is a Newtonian flow, it is difficult to acquire sufficient stability that it is easy to dissociate. Especially about drainage system gels, such as an agar and gelatin, it is crushed by external force at the time of distribution, or the problem of dissolving according to the temperature conditions at the time of storage occurs. It is not known about the charge of makeup which made stability distribute current and about several mm drainage system gel.

[0003]

[Problem(s) to be Solved by the Invention] The charge of drainage system makeup of the new gestalt which is solid-liquid mixed stock is obtained. That is, the charge of makeup of the pharmaceutical form which made the sol distribute the gel particle adjusted to the mean particle diameter of 0.5-10.0mm is obtained. Of course, it has freezing resistance and elevated-temperature resistance, there is no poor stability, such as water-repelling, and it inquired that combination of an active principle being also easy and these should be attained.

[0004]

[Means for Solving the Problem] In view of the above-mentioned situation, this invention person inquired wholeheartedly that the charge of new drainage system makeup which is solid-liquid mixed stock should be offered, and reached this invention. That is, it provides about the process for obtaining the charge of makeup of the pharmaceutical form which made stability distribute in a sol the gel particle adjusted to the mean particle diameter of 0.5-10.0mm, and a presentation.

[0005] this invention person examined drainage system gel created by the polysaccharide which

forms collapsibility gel. Then, about the part which gave shearing force, it solated by applying mechanical shearing force to the collapsibility gel solidified to homogeneity, and its attention was paid to the fact of being still gel, about the part which shearing force did not join. At this time, the sol-gel mixture of the magnitude of the particle which carries out the purpose was obtained by applying suitable shearing force. However, about this sol-gel mixture, water separates into a surface also in ordinary temperature in several hours. Moreover, if a freezing test is performed, gel will be destroyed owing to freezing of water. Then, in order to prevent water-repelling and to give freezing resistance, the water-soluble thickener chosen as a stability improver was blended, and the target constituent was obtained.

[0006] The following points are got as the sol of the polysaccharide which forms collapsibility gel, and a general property of gel. It is [no extreme viscosity down] and is stable at large PH. Since the remelting temperature of collapsibility gelation polysaccharide is generally 80 degrees C or more, a change of state does not happen but it is excellent in the stability in an elevated temperature with the temperature not more than it. Moreover, although included in an emulsification system, there are little coalescence of an emulsification particle, separation, etc. It is stable to the electric charge of a metal ion etc., and since the salt atmosphere is good, the metal salt of an active principle etc. can be blended. Moreover, condensation of the water soluble polymer produced from the electric charge in a pigment-content powder system is not produced, either. It is comparatively little, and since hyperviscous gel is made, it is that a feeling of use also has little effect etc.

[0007] After carrying out the heating dissolution of the water solution which contains one sort in native gellant gum, xanthan gum, guar gum, roast bean gum, a carboxyvinyl polymer, an acrylic acid and an alkyl methacrylate copolymer, hydroxyethyl cellulose, and hydroxypropylcellulose, or two sorts or more as a stable disposition top agent including one sort in an agar, a carrageenan, gellant gum, and sodium alginate, or two sorts or more as collapsibility gelation polysaccharide, cooling solidification is carried out at homogeneity. Then, mechanical shearing force is given and a part of gel is made to solate. At this time, the average grain size of a gel particle is adjusted to 0.5-10.0mm by adjusting shearing force, and the sol-gel mixing constituent made into the purpose is obtained. The sol-gel mixing constituent obtained here has freezing resistance and elevated-temperature resistance, and does not have poor stability, such as water-repelling, and combination of an active principle is also easy for it.

[0008] About the loadings of collapsibility gelation polysaccharide, if many [too], gel becomes hard too much, since the part made to solate at the beginning is soft, even if it gives mechanical shearing force, gel will escape, and it will become difficult to adjust particle diameter. Moreover, gel will not be formed if too few. Therefore, generally 0.01 - 5.0% of the weight of the range in [all] a constituent is appropriate, and 0.1 - 2.0 % of the weight is especially desirable. Moreover, above the melting point of the gelling agent of collapsibility, gel remelts, after cooling, it will solidify to homogeneity and description will change. Therefore, in order to acquire sufficient elevated-temperature resistance, 60 degrees C or more of melting points of a collapsibility gelling agent are required, and especially its 80 degrees C or more are usually desirable.

Especially, as a suitable example, as for an agar, AX-30.UP-6.UP-37. ultra agar UX-30.UX-200 (product made from the Ina food stuff industry) is raised, and, as for gellant gum, KERUKOGERU (Dainippon Pharmaceutical Co., Ltd. make) is raised. Furthermore, if many [too], collapsibility gel will not be formed, but if there are too few water-soluble thickeners used as a stability improver, poor stability, such as water-repelling, will produce them. Therefore, generally 0.01 - 5.0% of the weight of the range in [all] a constituent is appropriate, and 0.1 - 2.0 % of the weight is especially desirable. Especially, as a suitable example, as for native gellant gum, KERUKOGERU LT-100 (Dainippon Pharmaceutical Co., Ltd. make) is raised, and, as for xanthan gum, Keltrol T (Dainippon Pharmaceutical Co., Ltd. make) is raised.

[0009] Here, gellant gum and native gellant gum are polysaccharide which makes a glucose, glucuronic acid, and rhamnose a configuration unit, and are macromolecule polysaccharide of the microorganism origin. Generally it is produced by culture of a microorganism. The method of specifically manufacturing Pseudomonas ERODEA (Pseudomonas elodea) or its equivalent strain from the mucilage produced on the fungus body front face from the culture cultivated and

obtained under aerobic conditions is illustrated. That in which each difference is based on the difference of whenever [acylation], and there are few acyl groups and they form the collapsibility gel of transparency is gellant gum, and that in which an acyl group forms many opaque non-collapsibility gels is native gellant gum. Xanthan gum is polysaccharide which mainly consists of a glucose, a mannose and the sodium of glucuronic acid, a potassium, and a calcium salt, and is macromolecule polysaccharide of the microorganism origin. It is manufactured by the same approach as gellant gum using the *Xanthomonas bacillus* (*Xanthomonas campestris*), an agar — agar-agar (*Gelidium amansii* Lamouroux), other species of the same genus (*Gelidiaceae*), or variety red — since that is right, freezing dehydration of the obtained mucus is carried out. [0010] When the approach of giving mechanical shearing force was examined, also in general mixing agitators, such as a paddle type mixer and a Henschel mixer, the target sol-gel mixture was obtained easily. Moreover, the nozzle of a restoration machine was equipped with a mesh and the good result was obtained also in the approach of adjusting the magnitude of a gel particle. About the size of the particle made according to mechanical shearing force, it will become the usual cream and the appearance of gel by 0.5mm or less of mean diameters. Moreover, when mean particle diameter is too large, since it becomes difficult to crush gel completely when it uses as a charge of makeup, it is an unsuitable case. Therefore, the mean particle diameter of 0.5mm — 10.0mm is suitable.

[0011]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained.

A: Blend with the target charge of drainage system makeup the water-soluble thickener chosen as collapsibility gelation polysaccharide and a stability improver.

B: Adjust A to sol-gel mixture. the adjustment approach — warming — cooling solidification of the dissolved A is carried out. The mechanical shearing force according to the purpose is applied to the solidified gel, and the magnitude of a particle is adjusted. The sol-gel mixing constituent made into the purpose by using this approach is made.

[0012] This invention can blend various components according to the purpose of use. For example, each product can be made from blending the component accepted as cosmetics, quasi drugs, and drugs. Of course, a component is suitably chosen by the purpose of use. The collapsibility gelation polysaccharide currently used with the sol-gel mixing constituent of this invention and a water-soluble thickener are useful also as a moisturizer. Therefore, since a fresh feeling of use is realizable, it is suitable as a skin-care constituent. Since stability is good also as a makeup constituent, it can use easily. In addition, although shown below as a component blended, of course, it is not limited to this. As emulsification, solubilization, the surfactant as a dispersant, and an example, POE fatty acid ester, polyglyceryl fatty acid ester, the POE higher-alcohol ether, A nonionic surfactant and fatty-acid potassiums, such as POE.POP block polymer, Fatty-acid sodium, a high-class alkyl-sulfuric-acid ester salt, an alkyl ether sulfate salt, Anionic surfactants, such as acyl sarcosine acid chloride and sulfo succinate, Moreover, it is also possible for there to be cationic surface active agents, such as an alkyl trimethylammonium salt, a dialkyl dimethylammonium salt, alkyl pyridinium salt, and a benzalkonium chloride, and to blend the amphoteric surface active agent of an imidazoline system and a betaine system. As oil, if it can be used for the usual cosmetics, it can blend, and it is vegetable oil, As animal oil, such as olive oil, jojoba oil, castor oil, rice bran oil, and palm oil As synthetic oil, squalane, beef tallow, lanolin, etc. As a low silicone oil, the poly isobutene, fatty acid ester, a fatty-acid glycerol, etc. as a hydrocarbon, yellow bees wax, Japan wax, a candelilla low, a carnauba wax, etc. As higher alcohol, a liquid paraffin, a ceresin, a micro crystallin wax, vaseline, etc. As a higher fatty acid, cetanol, stearyl alcohol, an octyl dodecanol, etc. Stearin acid, a lauric acid, a myristic acid, oleic acid, etc. in addition to this As fine particles blended for the purpose, such as a coloring agent by which silicone resin, silicone rubber, the perfluoro ether, etc. are raised Usually, it is used for cosmetics and is organic coloring matter (with blue No. 1, green No. 3, red No. 202, red No. 227, yellow No. 4, etc.). The lake, an inorganic pigment (ferrous oxide, titanium oxide, chrome oxide, zinc oxide, etc.), an extender (a sericite, a mica, talc, nylon powder, and cellulose powder —) Natural coloring matter [, such as pearls (a titanium oxide processing mica, a titanium oxide ferrous-oxide processing mica, titanium oxide . Berlin-blue processing mica, etc.) and chlorophyll,

beta carotene,], such as silicon powder, polyacrylic acid alkyl, calcium phosphate, and boron nitride, is raised. One sort or two sorts or more may be chosen and used for arbitration out of these. Moreover, surface treatment and compound-ization may be performed to fine particles to these fine particles for the purpose of hydrophobic improvement, the fall of catalytic activity, and improvement in a lubricative property. A silicic acid anhydride, titanium oxide, nylon, polyacrylic acid alkyl, a fluorine compound, metallic soap, fats and oils, and fatty acid ester are illustrated as matter used in the case of this surface preparation and compound-izing. If the constituent of this invention is range which does not spoil the stability of a system, it can also blend a gums, a natural water solubility compound and its derivative, antiseptics, a chelating agent, an antioxidant, a moisturizer, lower alcohol, polyhydric alcohol, perfume, a refrigerant, PH regulator, an ultraviolet-rays inhibitor, etc. besides the above-mentioned component.

[0013] The gestalt and pharmaceutical form which the constituent of this invention can take are a liquid or a solid-state, and especially if it is the gestalt and pharmaceutical form of the shape of a liquid, gel, and a cream, they will not be limited. For example, it can use for products, such as a moisturization cream, a massage cream, an essence, face toilet, foundation, eye shadow, a lip stick, rouge, a SANKEA product, a hair treatment product, and a body care product. The constituent of this invention has a new appearance, does not have poor stability, such as water-repelling, has the salt atmosphere, does not have the rapid viscosity change by PH, and is a constituent with good usability. The manufacture approach is explained to be the concrete formula of the sol-gel mixing constituent of this invention in the example mentioned later.

[0014]

[Example] Although an example is shown below and this invention is concretely explained to it, the technical range of this invention should not be restrictively interpreted by this. In addition, weight % shows all the loadings of the constituent shown in the following tables.

[0015]

[Example 1] (The evaluation approach) About storage stability, after keeping it for one month at a room temperature, it checked that there were not separation, precipitate, etc. About elevated-temperature resistance, it held at 60 degrees C for 8 hours, and checked that there were not separation, precipitate, etc. About defrosting resistance, after keeping it in a -20-degree C incubator for 8 hours, it thawed at the room temperature and checked that there were not separation, precipitate, etc. About usability, it got wet, it attached in the ease of being crushed of the lightness of mileage, concordance, and a particle, and organic-functions evaluation was performed by n= 10 special panels in accordance with the following criteria.

O : — very good O : — a little good *: — a little bad x: — very bad

| ジェル | 実施例 1 | 比較例 1 | 比較例 2 |
|------------------------|---------|---------|---------|
| (1) 精製水 | 残余 | 残余 | 残余 |
| (2) ソルビット | 4 . 0 | 4 . 0 | 4 . 0 |
| (3) ジプロピレングリコール | 3 . 0 | 3 . 0 | 3 . 0 |
| (4) グリチルレチン酸ジカリウム | 0 . 1 | 0 . 1 | 0 . 1 |
| (5) P O E モノラウリン酸ソルビタン | 0 . 4 | 0 . 4 | 0 . 4 |
| (6) キサンタンガム | 0 . 3 | -- | -- |
| (7) ジェランガム | 1 . 0 | -- | 1 . 0 |
| (8) 塩化カルシウム | 0 . 0 8 | -- | 0 . 0 8 |
| (9) カルボキシビニルポリマー | -- | 0 . 1 5 | -- |
| (10) 水酸化カリウム | -- | 0 . 0 8 | -- |
| (11) 防腐剤 | 適量 | 適量 | 適量 |
| (12) 香料 | 適量 | 適量 | 適量 |
| (13) エタノール | 5 . 0 | 5 . 0 | 5 . 0 |

An example 1, the example 2 of a comparison: Add (2) - (11) to a component (1), and dissolve in it at 90 degrees C. Then, it cooled agitating, and after ****, to 55 degrees C, it cooled and

radiationnal-cooling solidification of (12) and (13) was carried out. Churning crushing was carried out with the paddle type mixer, and the solidified gel object was adjusted to the target grain size.

The example 1 of a comparison: Add (2) – (10) to a component (1), and dissolve in it. (11) – (13) is dissolved in homogeneity and it mixes.

[Table 1] More, the condition that the particle was distributing externally understood the example 1, and it was the new gestalt which is not until now. About stability, it is [elevated-temperature resistance and defrosting resistance] and was good. It liquefied to homogeneity that it is good also about a feeling of use, and a particle tends to be crushed. About the example 1 of a comparison, the appearance was liquefied. Although usability was almost good, by combination of glycyrrhetic acid JIKARIUMU which is an active principle, the condition of gel became poor, viscosity fell, and stability was poor. Especially defrosting resistance produced separation of a macromolecule bad. About the example 2 of a comparison, although the appearance was the same as the example 1, water-repelling produced it in storage stability. Moreover, defrosting resistance produced a lot of bad water-repelling. In usability, the condition that crushing of a particle liquefied to homogeneity bad at the time of use was not acquired.

[0016]

[Table 1]

| 評価項目 | 実施例 1 | 比較例 1 | 比較例 2 |
|----------|-----------|-------|-----------|
| 性状 | 粒子分散クリーム状 | 液状 | 粒子分散クリーム状 |
| 保管安定性 | ◎ | × | × |
| 高温耐性 | ◎ | × | × |
| 解凍耐性 | ◎ | × | × |
| うるおい感 | ◎ | △ | ○ |
| のびの軽さ | ◎ | ◎ | ◎ |
| なじみ | ◎ | △ | ○ |
| 粒子の潰れやすさ | ○ | -- | × |

[0017]

[Example 2]

Essence (1) purified water Residual (2) sorbitol 4.0(3) 1.3 butylene glycol 5.0(4) ascorbic-acid magnesium phosphate 0.5(5) POE mono-lauric-acid sorbitan 0.4 (6) agars 1.0(7) native gellant gum 0.5(8) trimethyl glycine 1.0 (9) antiseptics Optimum dose (10) PH regulator (it adjusts to PH8.0) Optimum-dose example 2: To a component (1), it is about (2) – (9). In addition, it dissolves at 90 degrees C. Then, it cools agitating, and after ****, to 55 degrees C, it cooled and radiationnal-cooling solidification of (10) was carried out. the solidified transparence gel object – a stainless steel mesh (20 meshes) — ** — it obtained and carried out, and adjusted to the target grain size, and the new essence which is a sol-gel mixing constituent was obtained. The appearance of this thing was in the condition for which translucent gel particles gathered, and was the new gestalt which is not in the old charge of makeup. It was what a gel particle is crushed simply, whose concordance is also good, and the feel after use also has admiration gently, and has Hari about usability. Moreover, stable combination of the ascorbic-acid magnesium phosphate which is an active principle was also satisfactory.

[0018]

[Example 3]

Massage cream (1) purified water Residual (2) sorbitol 4.0(3) 1.3 butylene glycol A 3.0(4) trimethyl glycine 5.0(5) POE (50 E.O.) hydrogenated castor oil 0.5 (6) agars 1.5 (7) hydroxyethyl cellulose 0.8 (8) glycerols 5.0(9) 2-ethyl hexanoic-acid cetyl 10.0 (10) sorbitan sesquioleate 1.0 (11) cetanols 3.0 (12) antiseptics Optimum dose (13) perfume Optimum dose (1) Each component

of - (8) The heating dissolution is carried out at 90 degrees C, and it keeps at 70 degrees C (aqueous phase). Heating preparation of (9) - (13) is independently carried out at 60 degrees C (oil phase), after carrying out mixed emulsification by the homomixer, to 55 degrees C, it cooled and radiationnal-cooling solidification of the aqueous phase and the oil phase was carried out. the solidified white gel object — a stainless steel mesh (ten meshes) — ** — it obtained and carried out, and adjusted to the target grain size, and the new massage cream which is sol-gel mixture was obtained. About the usability of this thing, it is that a gel particle is crushed and there was an advantage that termination of a massage was known clearly. It was the massage cream excellent in the smoothness after use.

[0019]

[Example 4]

Foundation (1) purified water The remainder (2) 1, 3-butylene glycol 5.0 (3) glycerols 1.0 (4) guar gum 0.5 (5) agars 0.8 (6) antiseptics Optimum dose (7) siliconizing talc 10.0 (8) siliconizing sericite 2.0 (9) siliconizing titanium oxide 15.0 (10) iron-oxide red 1.5 (11) iron-oxide yellow 3.0 (12) iron black 0.5 (13) decamethylpentacyclosiloxane 10.0 (14) polyether denaturation silicon 1.0 (15) methylphenyl polysiloxane 10.0 (16) dimethylpolysiloxane 8.0 (17) perfume optimum dose (1) Each component of - (6) The heating dissolution is carried out at 90 degrees C, and it keeps at 70 degrees C (aqueous phase). After carrying out mixed emulsification of the aqueous phase and oil phase which carry out 3 roller processing of (7) - (16) independently, and are kept at 70 degrees C (oil phase) by the homomixer, (17) was added, and radiationnal-cooling solidification was cooled and carried out to 55 degrees C. the solidified beige gel object — a stainless steel mesh (20 meshes) — ** — it obtained and carried out and adjusted to the target grain size. This thing was the appearance for which beige gel particles gathered unlike the usual foundation which has the shape of the shape of a cream, a liquid, and powder, and was the foundation of a new gestalt.

[0020]

[Example 5]

Emulsification object gel distribution face toilet (1) purified water Residual (2) sorbitol 4.0 (3) 1.3 butylene glycol 5.0 (4) potassium hydroxides 0.03 (5) POE mono-lauric-acid sorbitan A 0.8 (6) trimethyl glycine 1.0 (7) carboxyvinyl polymers 0.05 (8) glycerols 3.0 (9) antiseptics Sol-gel mixing constituent of the optimum dose (10) example 3 10.0 (1) Each component of - (9) The mixed dissolution was carried out and the viscous liquid was obtained. (10) was added, it distributed to homogeneity and emulsification object gel distribution face toilet was obtained. The white particle was the new appearance distributed to transparence face toilet. It was face toilet excellent in moistness.

[0021]

[Effect of the Invention] The sol-gel mixing constituent of this invention has the following descriptions and advantages so that clearly from the place explained above.

(b) Obtain the charge of makeup of a new gestalt. That is, the charge of drainage system makeup of the appearance which is not until now of making the sol distribute the gel particle adjusted to 0.5-10.0mm can be obtained.

(b) This constituent has freezing resistance and elevated-temperature resistance, and does not have poor stability, such as water-repelling, and combination of an active principle is also easy for it.

(Ha) About the base material used by this invention, it is used widely as a food additive or a cosmetics raw material, and safety is very higher still.

[Translation done.]